CLAIMS

We Claim:

1. A catalyst composition comprising a polymerization catalyst and at least two different compounds that at a specified temperature react to form a catalyst inhibitor that deactivates the catalyst composition.

2. The catalyst composition of claim 1 wherein the catalyst inhibitor is formed at a temperature different from the specified temperature.

3. The catalyst composition of claim 1 wherein the specified temperature is greater than a polymerization temperature.

4. The catalyst composition of claim 1 wherein the polymerization catalyst is supported.

5. The catalyst composition of claim 1 wherein at least one of the two different compounds has a weight loss of less than 20 weight percent measured using thermogravimetric analysis at 80°C for 20 minutes.

6. The catalyst composition of claim 1 wherein at least one of the two different compounds has a dielectric constant greater than 2.

7. The catalyst composition of claim 1 wherein the at least two different compounds are at least one acid compound and at least one base compound.

8. The catalyst composition of claim 7 wherein the at least one acid compound has at least one -OH functionality and the at least one base compound has at least one -O functionality.

9. The catalyst composition of claim 1 wherein the at least two different compounds are at least one oxidant and at least one reductant.

10. The catalyst composition of claim 1 wherein the catalyst inhibitor comprises carbon dioxide.

11. The catalyst composition of claim 7 wherein the acid compound is L-malic acid.

12. The catalyst composition of claim 11 wherein the base compound is a carbonate containing compound.

13. The catalyst composition of claim 7 wherein the mole ratio of the at least one acid compound and the at least one base compound is in the range of from 20 to 0.05.

14. The catalyst composition of claim 7 wherein the acid compound is a Bronsted acid and the base compound is a Bronsted base.

15. A process for polymerizing olefin(s) in the presence of a polymerization catalyst and at least two different compounds in a reactor at an operating temperature, wherein the at least two different compounds react at a temperature above the operating temperature to form a catalyst inhibitor that reduces the effectiveness of the polymerization catalyst to polymerize olefin(s).

16. The process of claim 15 wherein the at least two different compounds react at a temperature greater than the polymerization temperature.

17. The process of claim 15 wherein the at least two different compounds are at least one oxidant and at least one reductant.

18. The process of claim 15 wherein the at least two different compounds are at least one acid compound and at least one base compound.

19. The process of claim 18 wherein the acid compound has at least one -OH functionality and the base compound has at least one -O functionality.

20. The process of claim 18 wherein the wherein the acid compound is L-malic acid.

21. The process of claim 18 wherein the base compound is a carbonate containing compound.

22. The process of claim 15 wherein the catalyst inhibitor comprises carbon dioxide.

23. The process of claim 15 wherein the polymerization catalyst is supported.

24. The process of claim 15 wherein the polymerization catalyst comprises a bulky ligand metallocene-type catalyst compound.

25. A continuous process for polymerizing one or more olefins in the presence of a polymerization catalyst in a reactor under polymerization conditions, the process comprising the steps (a) introducing a first compound; (b) introducing a second compound; wherein the first and second compounds react in the reactor to form at least one catalyst inhibitor.

26. The process of claim 25 wherein the first compound and the second compound are introduced to the reactor simultaneously.

27. The process of claim 25 where in the first compound and the second compound are combined prior to being introduced into the reactor.

28. The process of claim 25 wherein the first compound is introduced with the polymerization catalyst.

29. The process of claim 25 wherein the first compound is an acid compound.

30. The process of claim 25 wherein the second compound is a base compound.

31. The process of claim 29 wherein the acid compound has at least one -OH functionality.

32. The process of claim 30 where the base compound has at least one -O functionality.

33. The process of claim 25 wherein the catalyst inhibitor comprises carbon dioxide.

34. The process of claim 25 wherein the polymerization catalyst comprises a bulky ligand metallocene-type catalyst compound and an activator.

35. A catalyst composition comprising a bulky ligand metallocene-type catalyst compound, an activator, a support, an acid compound and a base compound, wherein the acid compound and the base compound are unreactive.

36. The catalyst composition of claim 35 wherein the acid compound is a Bronsted acid and the base compound is a Bronsted base.

37. The catalyst composition of claim 35 wherein the catalyst composition is heated to greater than 25°C, the acid compound and base compound react to form a catalyst inhibitor.

38. The catalyst composition of claim 37 wherein the catalyst composition is heated by the heat of a polymerization process in excess of the operating temperature of the process.

39. The catalyst composition of claim 35 wherein the mole ratio of the at least one acid compound and the at least one base compound is in the range of from 20 to 0.05.

40. A method for preparing a catalyst composition comprising the steps of:
(a) mixing a polymerization catalyst with an activator;
(b) adding a first compound;
(c) adding a second compound; wherein during the preparation the first and second compounds are unreactive.

41. The method of claim 40 wherein the first compound is an oxidant and the second compound is a reductant.

42. The method of claim 40 wherein the first compound is an acid compound and the second compound is a base compound.

43. The method of claim 40 wherein the method comprises the additional step of adding a support.

44. The method of claim 40 wherein following step (a), the mixture of the polymerization catalyst the activator are combined with the support.

45. The method of claim 40 wherein the first and second compounds are unreactive at polymerization temperature.

46. The method of claim 40 wherein the polymerization catalyst is a bulky ligand metallocene-type catalyst compound.

47. The method of claim 40 wherein the first and the second compounds are solids.

48. The method of claim 40 wherein the first compound has at least one -OH functionality.

49. The process of claim 40 where the second compound has at least one -O functionality.

50. In a process for polymerizing one or more olefins in the presence of a catalyst composition in a reactor operating at a polymerization temperature and a polymerization pressure to produce a polymer product, the process comprising at least one reaction of at least two different compounds producing at least one catalyst inhibitor at a temperature above the polymerization temperature.

51. The process of claim 51 wherein the at least two different compounds are at least one acid compound and at least one base compound.

52. The process of claim 51 wherein the at least two different compounds are at least one oxidant and at least one reductant.

53. The process of claim 51 wherein the at least one acid has at least one -OH functionality and the at least one base compound has at least one -O functionality.

54. The process of claim 51 wherein the polymerization temperature is in the range of from 65°C to 110°C.

55. The process of claim 51 wherein the catalyst inhibitor comprises carbon dioxide.